

Transformational Security Systems

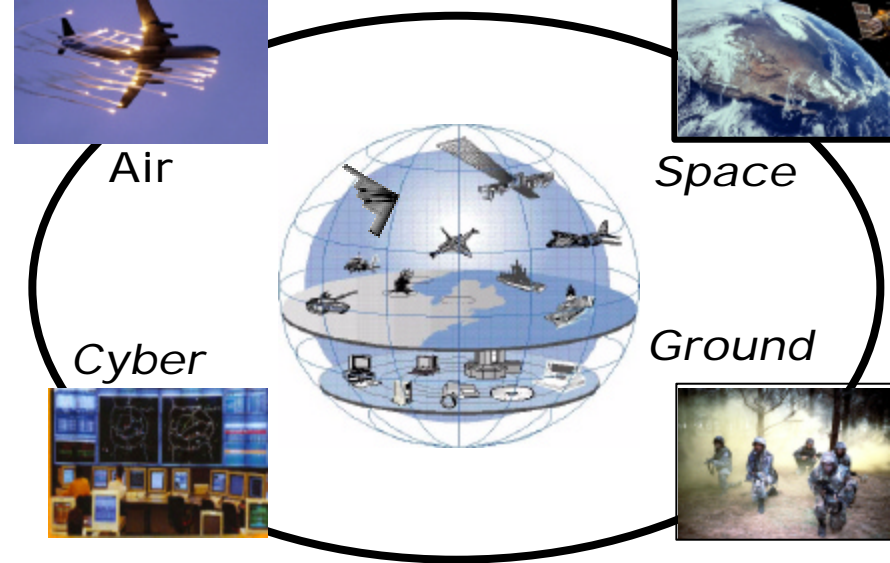


***“Shaping Tomorrow's
Technology Today”***

Colonel Howard L. Borst, ESC/FD
18th NDIA Security Division Symposium and Exhibition

Mission

World Class Leader in
Applying Technology and
Force Protection C2 Systems
For the Safety, Security, and
Survivability
of US Warfighting Assets, US
Warfighters and Dependents
Worldwide



Force Protection C2 Program Office

Customers



Products



To *Dominate* the Battlespace, Force Protection Must Be Able to



The Force Protection Virtual SPO

Force Protection

ASC/311 HSW

- NBC Defense Sys
- Consultation
 - Environ Safety
 - Occup Health
 - Bio Hazards
- Global Surveillance
- Int'l Health
- Combat Casualty Care
- Training
- Life Support
- Mod & Sim



AAC/WMO

- Chem/Bio Support
- EOD Robots
- Fire Technology
- Deployed Infrastructure
- Multimedia Trng
- Mod & Sim



ESC/FD

- Command and Control
- Tactical and Fixed Security Systems
- Nuclear Security
- UAVs, Non-lethal Weapons
- Advanced Tech
- Mod & Sim



AFRL/XPB

- Homeland Defense
- Agile Combat Spt
- Logistics Tech
- Mod & Sim



Cross-Functional Integration in a
“Collaborative Environment”



Integrated Base Defense Security Systems

"LEAP IN CAPABILITY"

Force Protection

MK1 Eyeballs

- Close-In
- Close Boundary
- Preventive Perimeter
- Distant Support

Electrons in Close Formation

- SPCDS
- Fence Sensor
- Buried Line Sensor
- CCTV

Integrated Circuits

- TASS
- AECS

Integrated Base Defense 2005

- Standoff Detection
- Track
- Classify
- IFF
- Non-lethal Denial
- IBD C2



P-51



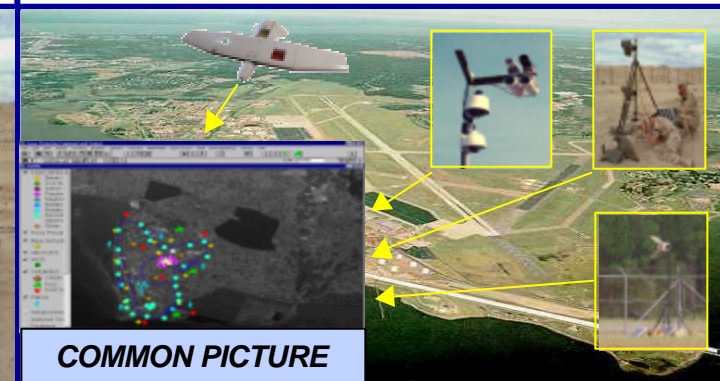
F-4



F-15



F-22



"The F-22 will give us a leap in capability over the F-15 as the F-15 gave us over the F-4."

Gen John P. Jumper



Traditional Approach to Security System Design

Force Protection

Simulated attack on airfield

- Multiple assets destroyed

Traditional Response

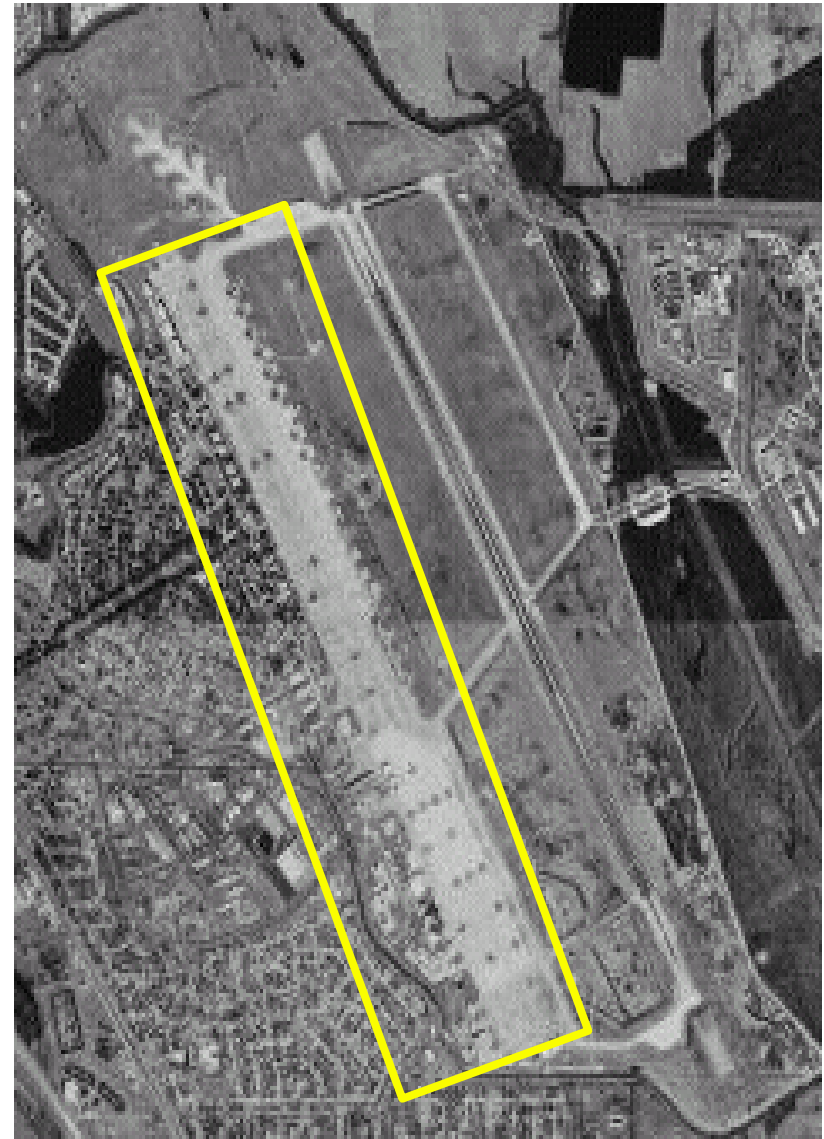
- Line of Detection around Area of interest
- Manual inspection of ID credentials

Radio Dispatched Response Teams

Material cost to mitigate is significant

- 12,000m Sensor Fence (\$millions)
- Manpower intensive

System Effectiveness Assessment (SEA) shows room for improvement





Transformational Security Systems

Modeling and Simulation

Force Protection

INTEGRATED OPERATIONAL & SYSTEM ARCHITECTURE VIEWS

TECHNOLOGIES

DENY

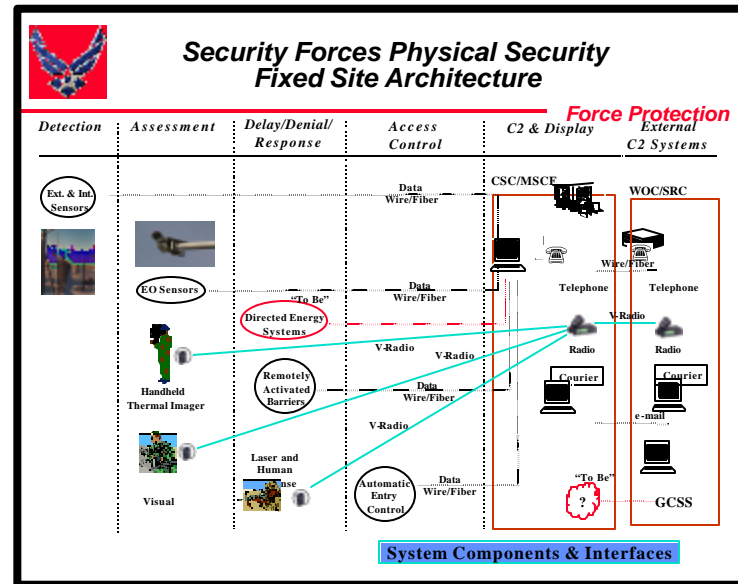
DETECT

DELAY

ASSESS

NEUTRALIZE

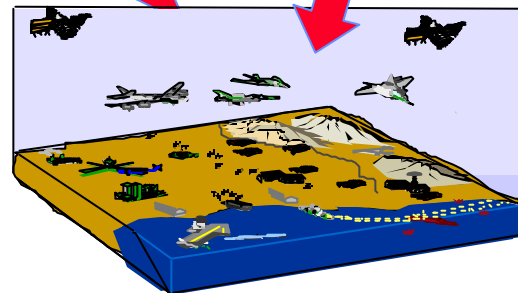
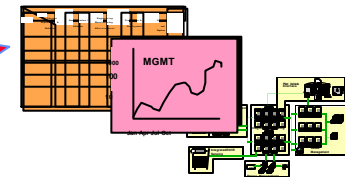
MITIGATE



TECHNOLOGY INVESTMENT ROADMAPS



Cost, Schedule & Risk Assessments



WEAPON SYSTEM BENCHMARKS

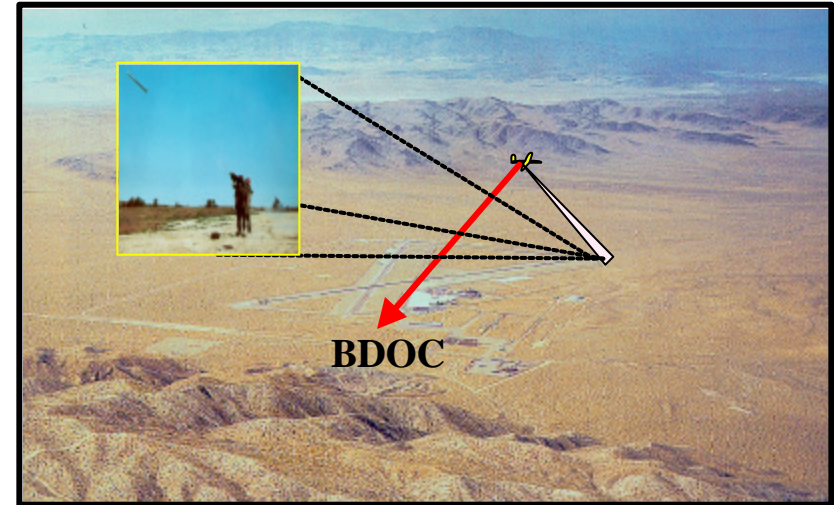
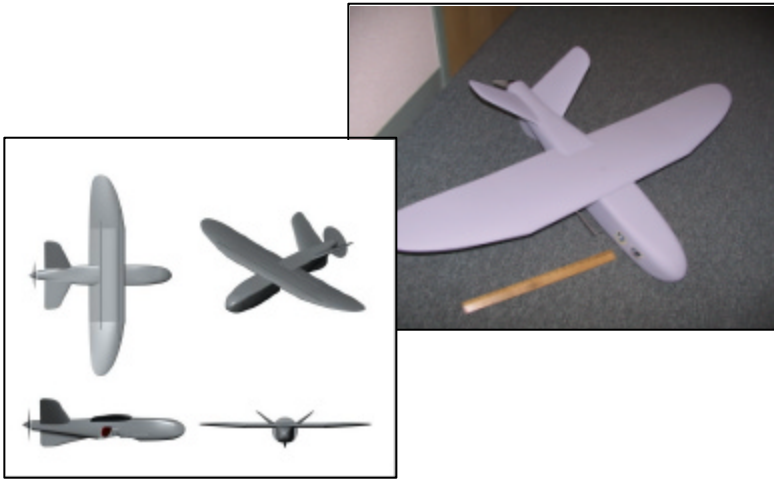
We need to fight our battles in a "Virtual" world first!



Transformational Security Technologies

Unmanned Air Vehicles

Force Protection



- **Sub-Tactical UAVs** can provide aerial based surveillance
 - See around/over/behind terrain, vegetation, and other masking features
 - Rapidly search large areas for man-portable SAM launch threats
 - Assess alarms well outside physical base perimeter - 'virtual perimeter'

- Increased P_i
- Decreased risk to forces



Transformational Security Technologies

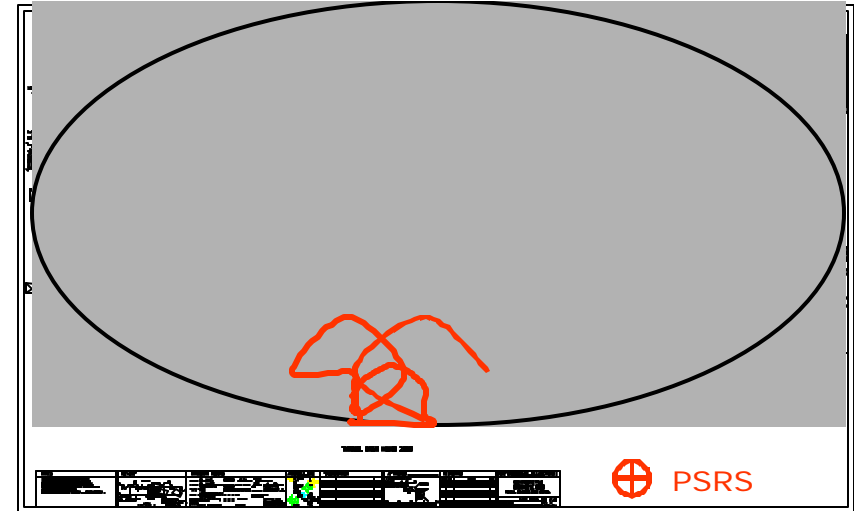
Wide Area Detection

Force Protection

Perimeter Surveillance Radar System (PSRS)



300m



5/10Km

Ground Surveillance Radar System

- Increases P_E 24%
- Reduced resources lost by 50%
- Reduced Risk from 24% to 2%

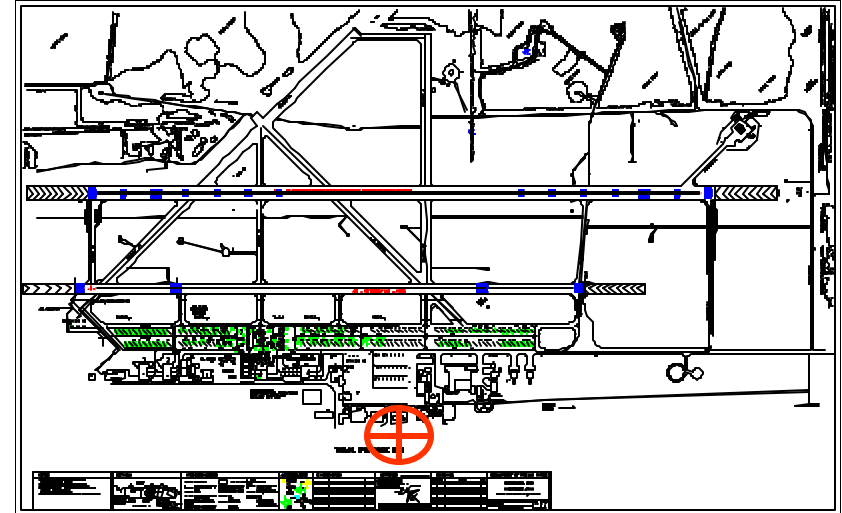


Transformational Security Technologies

Enhanced Access Control

Force Protection

- Force Protection is enhanced through:
 - 100% identification of personnel
 - Automated presentation of credentials
 - Positive vehicle identification
 - Improved traffic flow
 - Integrated Biometric Information
 - Capability to stop “gate running”
 - Visual record of base visitors



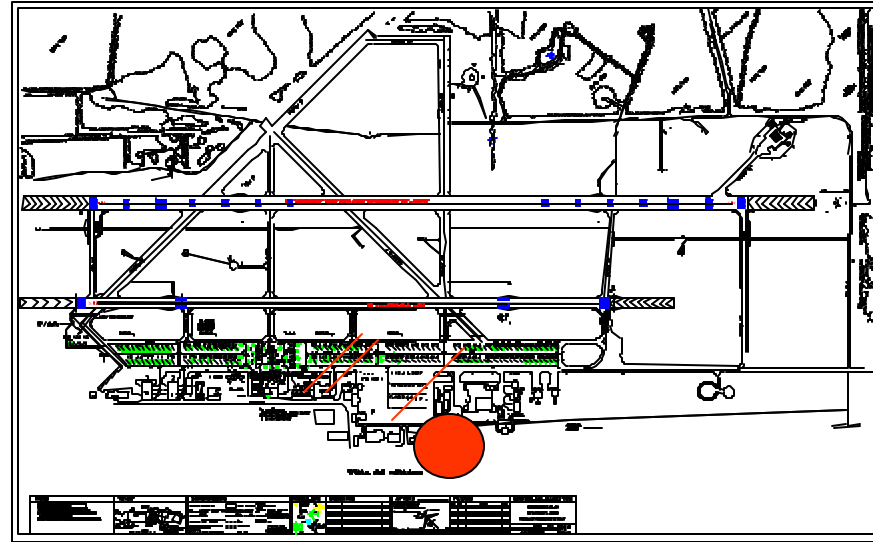
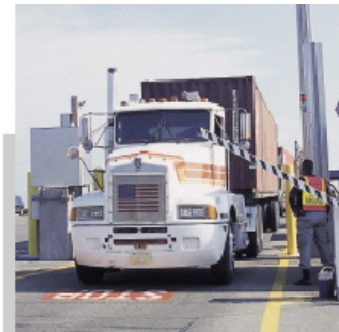
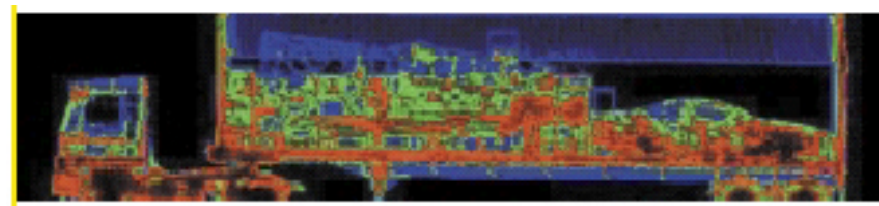
- Increased P_I by 70% against vehicle threat
- Increased P_E by 62%
- Reduced Risk against vehicle threat by 93%



Transformational Security Technologies

Cargo Explosives Detection

Force Protection



Force Protection is enhanced through:

- Effective screening of inbound large vehicles
- Development focused on:
 - Increased detection distance
 - Improved throughput
 - Decreased manpower

- Reduced Man/MWD power
- Improved stand-off distance to Explosive threat

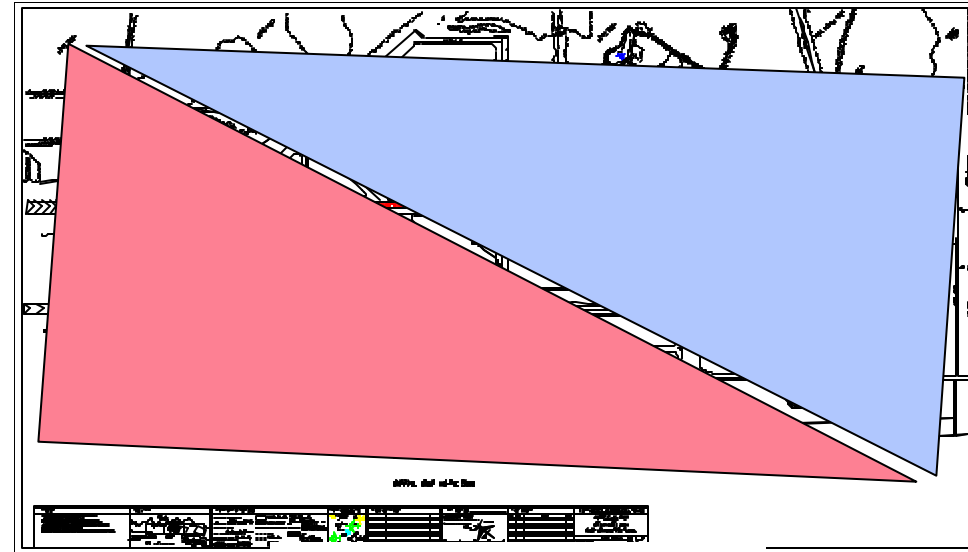
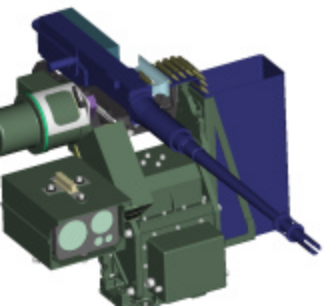
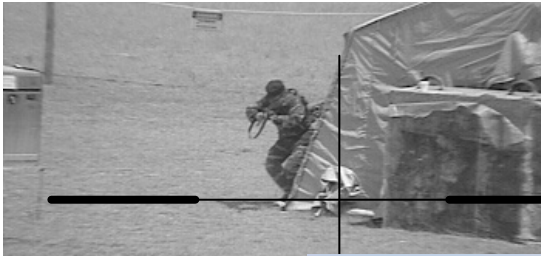
(currently 1 ft/sec w/ 1 operator, 1 traffic mgr)



Transformational Security Technologies

Remotely Operated Weapons

Force Protection



Remotely Operated Weapon

- Mounts for use on vehicles or in static locations
- Used to protect highest value assets
- Provides immediate lethal response, for delay/denial of adversaries

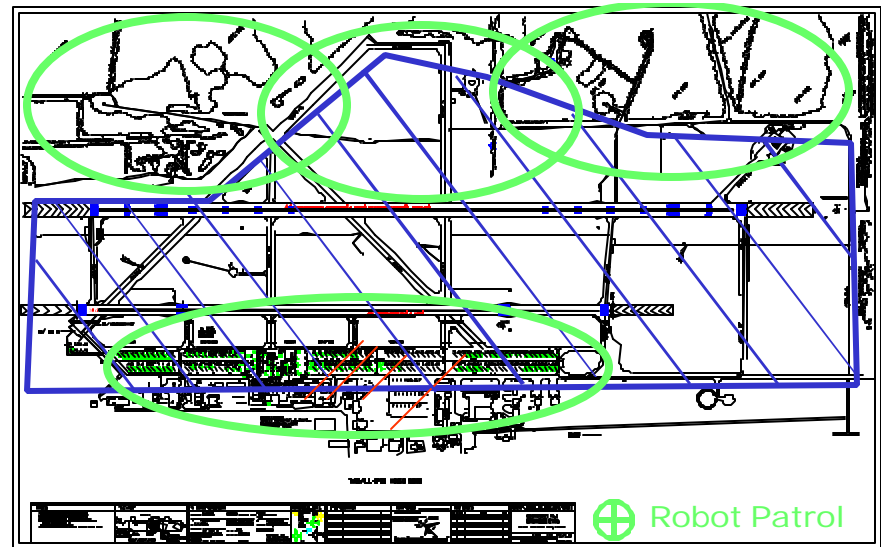
- Increased P_I 94%
- Increased P_N 94%
- Reduces response force time to seconds
- Reduced risk by 94%



Transformational Security Technologies

Robotic Patrols

Force Protection



- Capability for random unmanned patrols
 - Autonomous navigation
 - Suitable for perimeter and restricted area patrolling
- Flexible for a variety of sensor payloads
 - Day/night, all weather operations
 - Can perform Inventory Verification

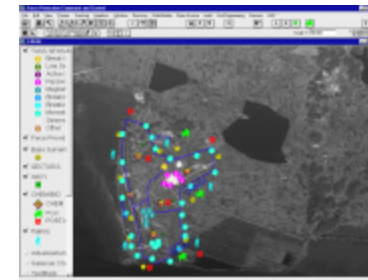
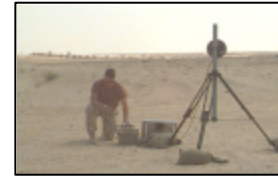
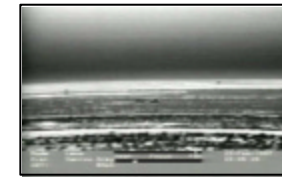
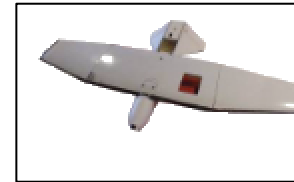
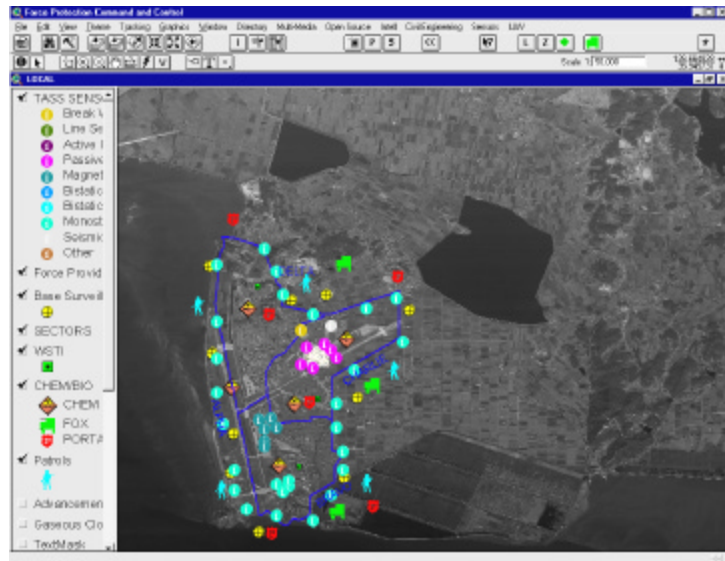
- Improved SF Survivability
- Reduced Manpower
- Improved C2/comm time with semi-automated dispatch to alarm/incursion location



Transformational Security Technologies

Force Protection Command and Control (FPC2)

Force Protection



- Display inputs from all security sensors
 - Tactical, Fixed, Airborne, Chem/bio
 - Map-based
 - Automatically shares/updates information

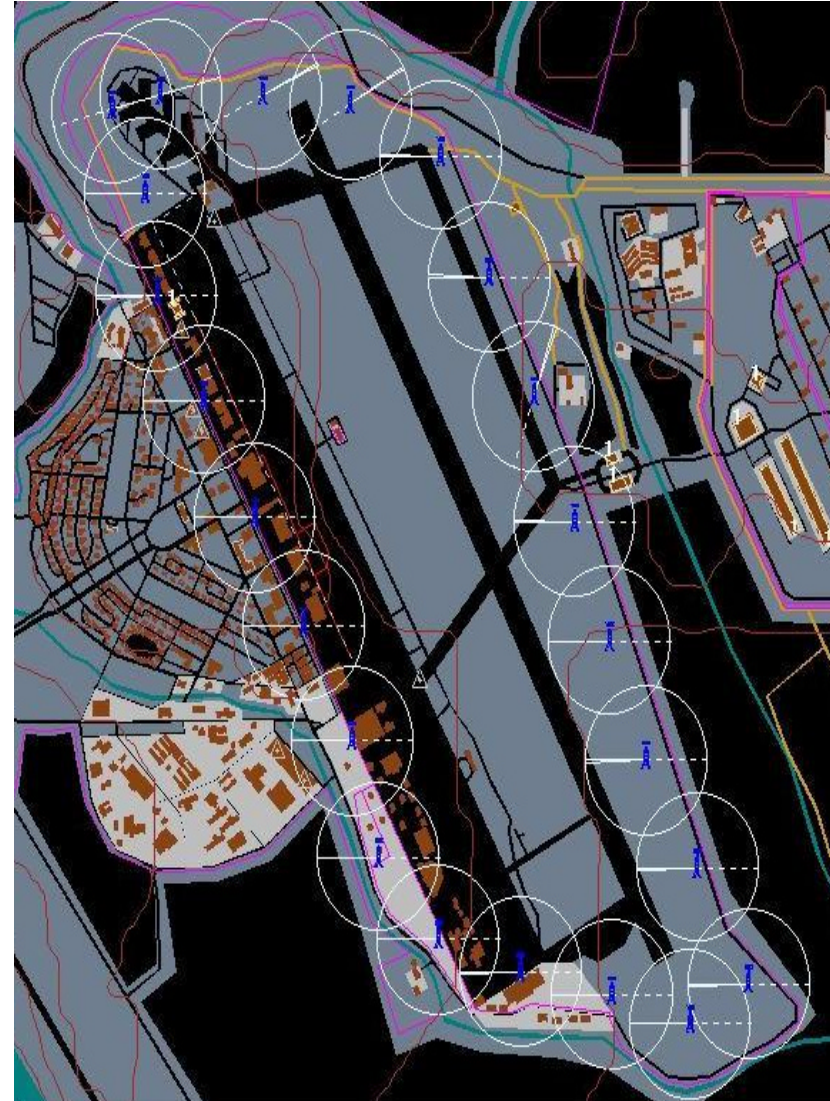
- Gives Commander the ability to put the right forces in the right place at the right time
 - Reduced communications time
 - Improved response time
 - Streamlined information flow
 - Improved situational awareness



Effects Based Security System

Force Protection

- **Wide Area Sensors**
 - Detect and Intervene farther from the resource
 - Provide Situational Awareness/ time advantage to responding forces
 - Can be integrated with Response Force C2 and remotely operated weapon systems
- **Damage reduced 50%**
- **Cost reduction for:**
 - Installation and maintenance
 - Reduced Infrastructure
- **New Capabilities:**
 - Improved Situational Awareness
 - Detect, Track and Target





Project “Leap Ahead”

Force Protection

FY02

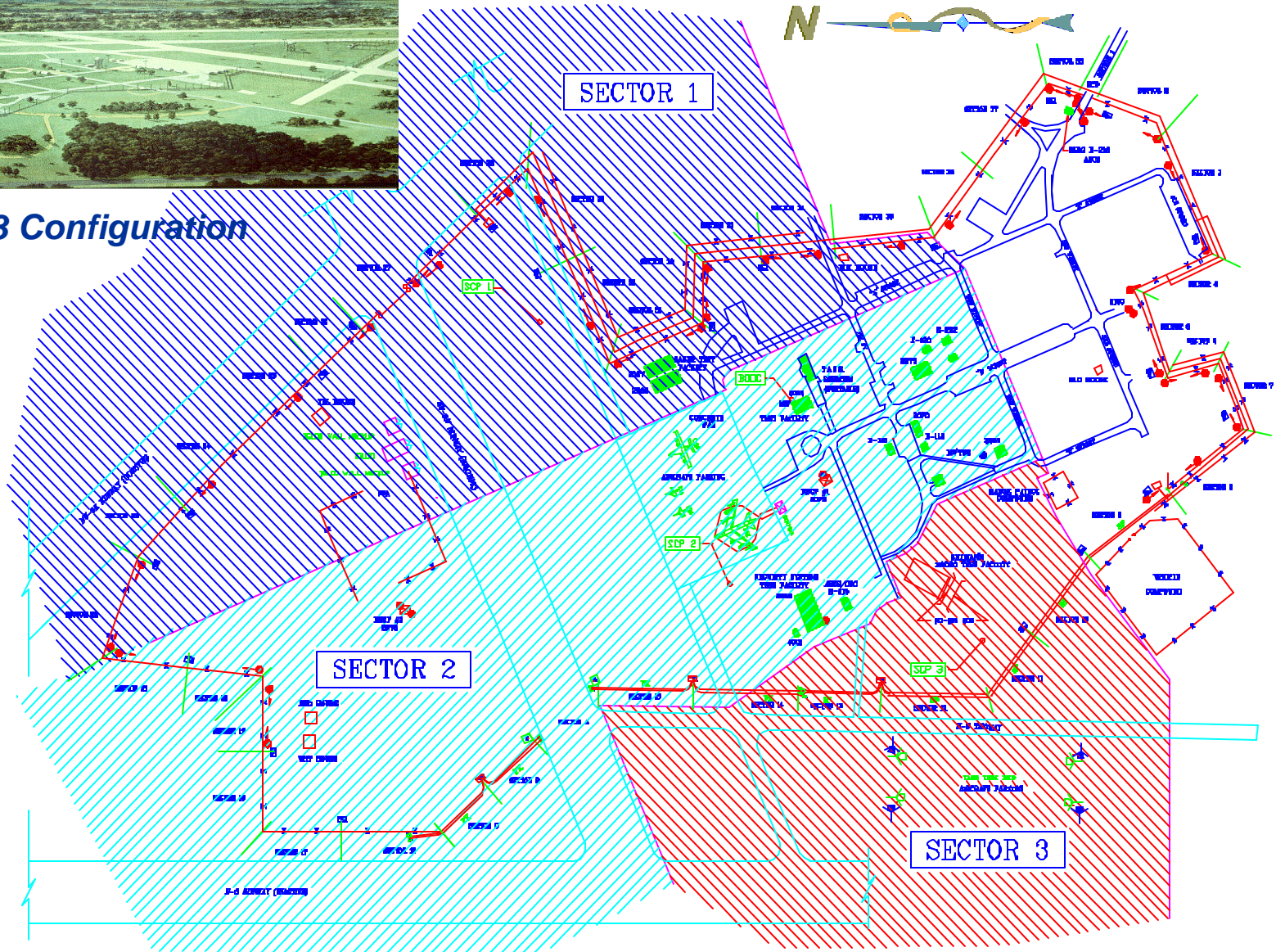
- Host Industry Day to solicit industry support
- Sponsor “Leap Ahead” Technology Demonstration
 - ~ Demonstrate IBD concepts at Site C-3, Eglin AFB FL
 - ~ Integrate in-place legacy systems and selected “Leap Ahead” technologies
 - ~ Use Information Technology Services (ITS) contract

FY03 & Beyond

- Set-aside PSEAG RDT&E funds for industry to identify and transition “Leap Ahead” technologies
- Implement “Leap Ahead” technology at operational AF installations



Force Protection



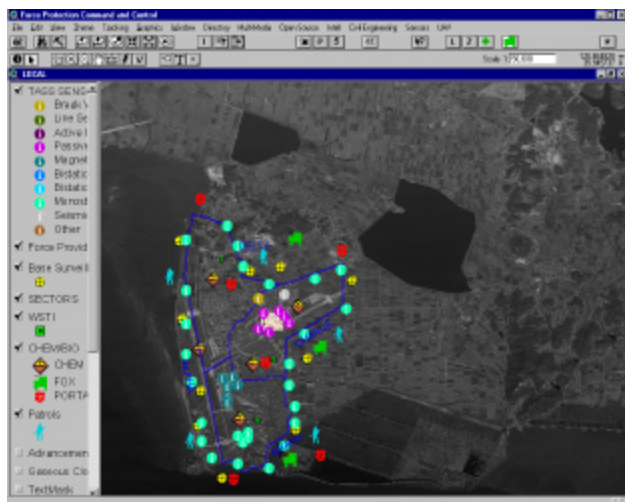


Achieving Battlespace Domination Through Advanced Technology

Force Protection

SEE FIRST

Relentless data capture
Detect/Identify threat
Predict threat COAs

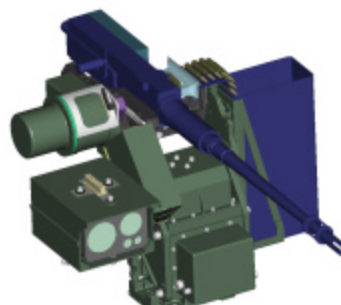


UNDERSTAND FIRST

- Tailor defense plans
- Identify vulnerabilities
- Know and manage risks

ACT FIRST

- Determine options
- Decide first
- Act to remove threat





Summary

Force Protection

- **Technological innovation is the linchpin of integrated base defense**
 - Magnifies the effects of all other IBD enablers
 - Essential for battlespace domination
- **Detection at a distance/assessment at a distance**
 - Facilitates choosing the time and place for adversarial engagement
- **Robotic/telepresent weapons systems**
 - Distract, deter, and disable adversary
 - Modify enemy behavior while minimizing loss of friendly assets or collateral damage
- Endstate is to achieve **Full Dimensional Protection**